REMARKS

Applicant acknowledges approval of the request for continued examination under 37 CFR 1.114, making the application eligible for continued examination. Pursuant thereto, applicant has submitted a Supplemental Declaration under 37 CFR 1.132 and a certified copy of the priority document corresponding to the Chinese patent and an English translation thereof in accordance with 37 CFR 1.55 as well as a certification of authenticity from the translator. The submission of these documents are considered essential by applicant to perfect the claim for foreign priority under 35 USC 119, as requested by the Examiner and to overcome the cited reference Hao et al.

The Supplemental Declaration submitted under 37 CFR 1.132 and executed by all of the inventors in conjunction with the filing of the certified copy of the Chinese priority document and translation under §706.02(1) and §706.02(1)(2) of the MPEP, substantiate that any invention disclosed but not claimed in the cited reference Hao et al was derived from the inventor of this application and is thus is not an invention (by another). Accordingly, the rejection of claims 12-15 in view of the reference Hao et al under 35 USC 103 should be withdrawn. This Supplemental Declaration was made necessary to satisfy the objections of the Examiner to the previous Declaration.

In view of the objection to the disclosure, applicant has also amended page 5 of the specification, first paragraph to make it clear that the afterglow time of 80 hours is a measurement of the brightness of the composition of the present invention but is not dependent upon the samples in Table I. Accordingly, the objection to the disclosure should be withdrawn.

The Examiner has also made the statement that the specification does not teach the composition of samples 1-5 in Table I. The Supplemental Declaration under 37 CFR 1.132 also addresses this rejection, stating that the compositions of samples 1-5 in Table I is not relevant to the subject invention. The Supplemental Declaration under 37 CFR 1.132, also makes it clear that the specification does not have to teach the individual

amounts of B, D_y, and E_u in the formula of claim 10 for one skilled in the art to make and use the same and that the specification completely satisfies the written description requirement under 35 USC 112. Applicant has attempted on several occasions to explain why this is the case and has elaborated upon this in the Supplemental Declaration. In contrast, the Examiner has not explained technically why the specification is deficient. Simply alleging insufficiency does not overcome a declaration executed by the inventors under Rule 1.132 explicitly stating otherwise and accordingly this rejection should be withdrawn.

The Examiner has over and over again referred to the statement of applicant achieving an afterglow time of 80 hours or more as being unproven, i.e. that Table 1 does not justify this conclusion. Notwithstanding the position taken by the Examiner, applicant does not believe that such justification to the satisfaction of the Examiner is necessary or warranted. The afterglow time relates to a measurement of brightness as explained in the Supplemental Declaration under 37 CFR 1.132 and is not included in any of the claims. Accordingly, the objection and rejection based on this is misplaced and should be withdrawn.

The Examiner has again alleged that the individual amounts of E_u and D_y determine the afterglow property and are critical to the invention. Once again, despite the fixation by the Examiner on the afterglow time and its determination, applicant is not claiming a method of determining afterglow time, nor has applicant claimed afterglow time as a limitation in any of the claims which define the invention. Accordingly, the Examiner's statements regarding criticality to the invention is in error and should be withdrawn.

The Supplemental Declaration under 37 CFR 1.132 quite clearly reemphasizes what the applicants consider to be the invention. It is the applicant who defines what the invention is, not the examiner.

The subject formula $(Sr, Eu, Dy)_{0.95\pm X}(Al, B)_2O_{3.95\pm X} \cdot (Sr, Eu, Dy)_{4-X}(Al, B)_{14}O_{25-X}$ wherein x=0.01 to 0.1, teaches a paragenesis crystalline material consisting of an A-phase of $(Sr, Eu, Dy)_{0.95\pm X}(Al, B)_2O_{3.95\pm X}$ and a B-phase of $(Sr, Eu, Dy)_{4-X}(Al, B)_{14}O_{25-X}$.

The optical properties of the diphase compound claimed by applicant is controlled by changing the ratio of the A-phase to the B-phase. This is also explained in the Supplemental Declaration of the inventors under 37 CFR 1.132. Accordingly, applicant believes the invention satisfies the written description requirement of 35 USC 112 and is definite to one skilled in the art as is stated in the Supplemental Declaration signed by all of the inventors. Accordingly, the rejection of claims 10 and 11 under 35 USC 112, second paragraph, should be withdrawn.

The rejection of claims 12-15, as being obvious over Hao et al, is now believed to be moot, in that applicant has attached hereto the documentation required to perfect the claim to priority and that all of the inventors of the subject application have executed a Declaration under Rule 1.132, asserting that any invention disclosed in the Hao et al reference, but not claimed, was derived from the inventors of this application and is thus not an invention by another.

The only other rejection raised by the Examiner relates to claims 12 and 13 which have been rejected under 35 USC 103(a) as being unpatentable over Royce et al.

Applicant has amended claim 12 in order to make it clear that the light emitting material produced by the method of claim 12 is the light emitting material defined in claim 10, having the formula of: $(Sr, Eu, Dy)_{0.95\pm X}(Al, B)_2O_{3.95\pm X} \cdot (Sr, Eu, Dy)_{4-X}(Al, B)_{14}O_{25-X}$ wherein x=0.01 to 0.1. This was set forth in the originally filed claims and has been self-evident from all of Applicants remarks. Moreover, the method would make no sense and be inconsistent with the specification, declaration and supplemental declaration of the inventors if the method claims were more broadly construed to apply to any light emitting material independent of the light emitting

material as defined in claim 10 and in the specification. It is, in fact, critical to the method of claim 12 and was implied in each previous response of applicant that the diphase material of claim 10 is the material being produced by the method consistent with the specification. Accordingly, claim 12 is limited to a method of producing a light emitting material having the above formula, and to a sintered body of a crystalline diphase material with the above molecular formula.

Applicant believes that claim 12 which is now expressly limited to producing a crystalline diphase material having the formula $(Sr, Eu, Dy)_{0.95\pm X}(Al, B)_2O_{3.95\pm X}\cdot(Sr, Eu, Dy)_{4-X}(Al, B)_{14}O_{25-X}$ wherein x=0.01 to 0.1, clearly render both claims 12 and 13 patentable over the cited reference Royce et al. Royce et al teaches a single phase crystalline material having the molecular formula of $MO.a(al_{1-b}B_b)_2O_3:cR$, which is completely different from the molecular formula of $(Sr, Eu, Dy)_{0.95\pm}\cdot(Sr,Eu,Dy)_{4-X}(Al,B)_{14}O_{25X}$. The material of the present invention has two phases A and B in one compound. Each of two phase has a different optical characteristic and a different luminescence wavelength. The luminescent wavelength of the A Phase portion is 520 nm, and the luminescent wavelength of the B Phase portion is 490 nm. This unique property is very different from the single phase light emitting material of Royce.

The method claims define the procedure for forming this diphase crystalline material which of itself is novel and not known in the prior art. This recognition alone for producing a diphase compound from the recited raw materials in claims 12 and 13 is of itself novel and non-obviousness from the disclosure in Royce et al. Claim 12 was never intended to cover all light emitting materials outside the scope of the specification. Applicant admits there is no novelty in the raw materials themselves or in combination separate from the method for producing a diphase crystalline material of a specified molecular formula. Accordingly, claim 12, as amended, and claim 13 which is dependent upon claim 12 are clearly patentable over Royce et al under 35 USC 103(a) and the rejection thereof should be withdrawn.

Applicant acknowledges that the Examiner has taken the liberty to make this rejection a final rejection even though it is a first office action after the submission under 37 CFR 1.114. Nevertheless, it is essential to applicant that the documentation and Declaration submitted under 37 CFR 1.132 be entered into the file to perfect the claim for priority. The grant of the request by applicant for continued examination of the application under 37 CFR 1.114 should not foreclose applicant the right to have the Declaration under 37 CFR 1.132 entered into the file to overcome a rejection in accordance with MPEP §706. Moreover, the amendment to claim 12 clearly overcomes the teaching of Royce. However, should the Examiner still consider claims 12 and 13 to be unpatentable over Royce et al under 35 USC 103(a), applicant respectfully requests that the amendment to claim 12 be entered for purposes of appeal.

Reconsideration and allowance of claims 10-16 is respectfully solicited.

Respectfully submitted,

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MAILING CERTIFICATE

I hereby certify that this correspondence is being deposited with the U.S. Postal Service as first class mail in an envelope addressed: Commissioner of Patents & Trademarks, Washington, DC 20231 on November 4, 2003.

Date: 11/4/03

CLAIMS

10. (Original) A light-emitting material having a paragenesis crystalline structure consisting of two different phases expressed by the following general formula: $(Sr, Eu, Dy)_{0.95\pm X}(Al, B)_2O_{3.95\pm X} \cdot (Sr, Eu, Dy)_{4-X}(Al, B)_{14}O_{25-X}$ wherein x=0.01 to 0.1, B is present between 0.2 to 1.0% by weight, Eu is present between 0.5 to 3.0% by weight Dy is present between 0.1 to 0.3% by weight.

11. (Previously Amended) A light-emitting material according to claim 10, wherein the element B exists in the entire crystallization structure of both phases.

12. (Newly Amended) A method of producing a light-emitting material consisting of two different phases expressed by the following formula: $(Sr, Eu, Dy)_{0.95\pm X}(Al, B)_2O_{3.95\pm X} \cdot (Sr, Eu, Dy)_{4-X}(Al, B)_{14}O_{25-X}$ wherein x=0.01 to 0.1 comprising the steps of:

(1) pulverizing raw material(s) from the group consisting of S_rCO_3, Al_2O_3, H_3BO_3, Eu_2O_3 and Dy_2O_3;

(2) heating the pulverized raw material(s) at a temperature in the range between 850°C and 1200°C for three hours under a reduction condition,

(3) maintaining the temperature of step 2 relatively constant to form a sintered body of a crystalline diphase material having the above molecular formula,

(4) cooling the sintered body down to room temperature, and

(5) pulverizing the sintered body.

13. (Original) The method of claim 12 wherein Eu3+ of Eu_2O_3 is reduced to Eu2+ during sintering.

14. (Original) The method of claim 12, wherein in step (2), the reduction is carried out using carbon powder.

15. (Original) The method of claim 13 wherein in step (2), the reduction is carried out using carbon powder.

16. (Original) The method of claim 12 wherein the temperature in step (3) was maintained for 5 to 6 hours.

Last Paragraph of Page 4 of specification.

The term "reduction condition" used in the present invention means to reduce the above-mentioned mixed raw material using carbon powder, or to reduce the mixed raw material using mixture gas of nitrogen and hydrogen of volume ratio of 4:1. The light-emitting material produced by the invention has faint yellow-green color. When this light-emitting material is irradiated with sunlight, a fluorescent light or the other artificial light source and excited, the main peak of the light-emitting spectrum is ~~505μm~~ 505nm, and shows

First paragraph of page 5 of specification

As a result of measurement of samples, it was found that the light-emitting material of the present invention showed brightness of about 8500mcd/m^2 after five seconds from the instant ~~when~~ that the irradiation was stopped, and has a visible afterglow time ~~was~~ of 80 hours or longer based upon measurement from the calculations in Table I attached hereto ~~(see Table 1)~~. As shown in Table 1, the light-emitting material produced by the method of the present invention has especially excellent visible afterglow time.